Data Mode Scrambler Options

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Data Mode Scrambler Choices

- Side-stream scrambler
- Polynomial option 1: Too short
  - Degree 15 short polynomials as in 802.3bp
  - Not recommened due to insufficient periodic length
- Polynomial option 2: Too long
  - Same as Clause 55
  - Master $G_M(x) = 1 + x^{39} + x^{58}$
  - Slave $G_S(x) = 1 + x^{19} + x^{58}$
  - Exchange initial seed during PAM2 training (same as in 802.3bp)
- Polynomial option 3: Just right
  - Data mode use the same deg=33 scramblers during training, adding one extra bit
  - Master $G_M(x) = 1 + x^{13} + x^{33}$
  - Slave $G_S(x) = 1 + x^{20} + x^{33}$
  - Scrambler advances 1 position per line symbol for either PAM2 or PAM4

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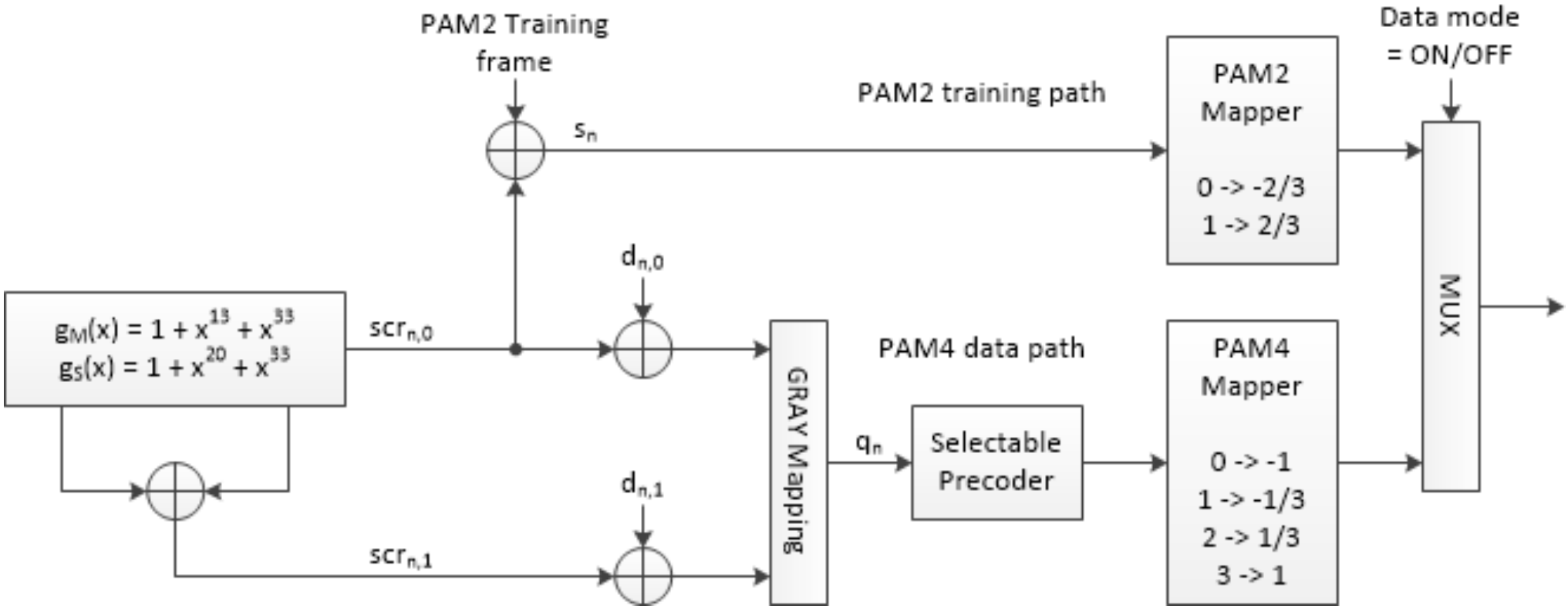
Same Training Mode Polynomials for Data Mode



- Same PAM2 training scramblers continue to run into data mode
- Generate one extra bit for data mode PAM4: $scr_n[4] + scr_n[6]$.
- No need to exchange scrambler seeds.
- The scrambler advance by 1 position per symbol in training as well as in data mode.

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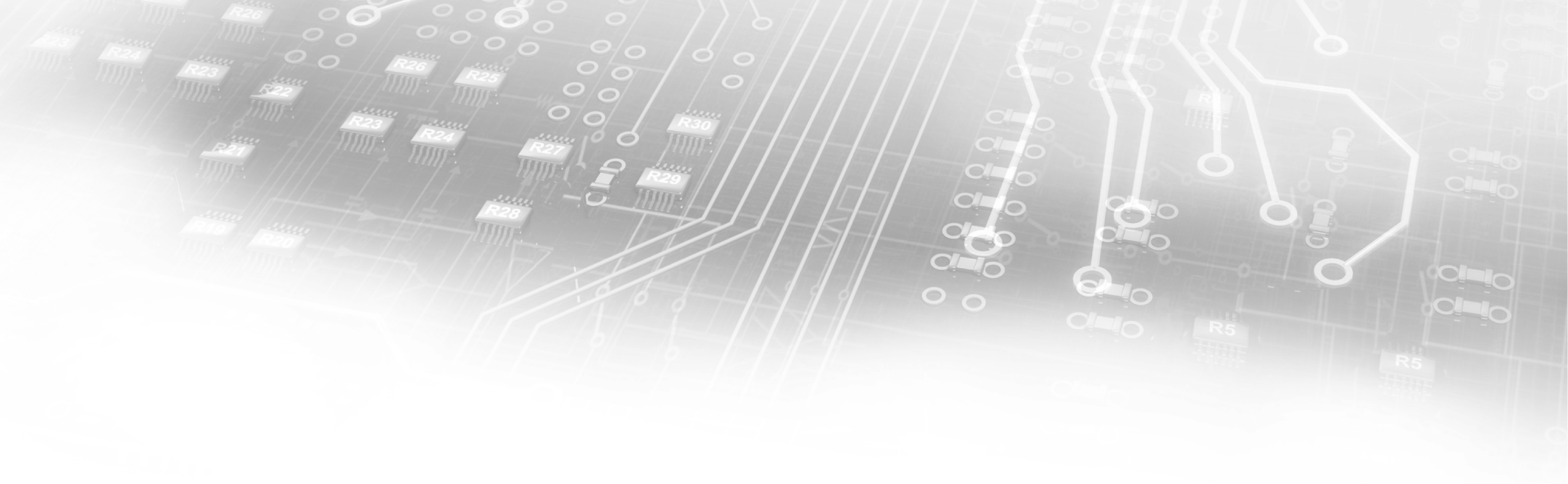

THANK YOU

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